Discrete Mathematics 17 (1977) 331–334.

BOOK ANNOUNCEMENTS

KENNETH R. BAKER, Introduction to Sequencing and Scheduling (John Wiley and Sons, Inc., New York, 1974) ix + 305 pp., £8.50.

1. Introduction. 2. Single-Machine Sequencing with Independent Jobs. 3. General Purpose Methodologies for the Single-Machine Problem. 4. Extensions of the Basic Model. 5. Parallel-Machine Models. 6. Flow Shop Scheduling. 7. Job Shop Scheduling. 8. Simulation Studies of the Dynamic Job Shop. 9. Network Methods for Project Scheduling. 10. Resource-Constrained Project Scheduling. Appendix A. Sixteen Test Problems for the $\bar{T}$ Problem. Appendix B. A Dynamic Programming Code for Sequencing Problems. Appendix C. A Design Strategy for a Branch and Bound Code. Index.

RUTH A. BARI and FRANK HARARY, Eds., Graphs and Combinatorics. Lecture Notes in Mathematics 406, Proceedings of the Capital Conference on Graph Theory and Combinatorics at the George Washington University, June 18–22, 1973 (Springer-Verlag, Heidelberg, 1974) 355 pp. $12.30.

Part I: Invited Papers. Recent Results on Trees (Frank Harary); A Survey of Generalized Ramsey Theory (Frank Harary); A Survey of the Reconstruction Conjecture (Frank Harary); Recent Results on Graphical Enumeration (Frank Harary); Is the Null-Graph a Pointless Concept? (Frank Harary and Ronald C. Read); Which Graphs Have Integral Spectra? (Frank Harary and Allen J. Schwenk).

Part II: Contributed Papers Expository Review Articles. Generalized Ramsey Theory for Graphs — A Survey (Stefan A. Burr); Some Recent Results in Topological Graph Theory (Paul C. Kainen); A Survey of Finite Embedding Theorems for Partial Latin Squares and Quasigroups (Charles C. Lindner); Computing the Characteristic Polynomial of a Graph (Allen J. Schwenk).

Part III: Contributed Papers New Results on Graphs and Combinatorics. Finding an Independent Set in a Planar Graph (Michael O. Albertson); A Class of Starter Induced 1-Factorizations (B.A. Anderson); Chromatically Equivalent Graphs (Ruth A. Bari); On Covering the Points of a Graph with Point Disjoint Paths (F.T. Boesch, S. Chen, and J.A.M. McHugh); A Useful Family of Bicubic Graphs (T.G. Boreham, I.Z. Bouwer, and R.W. Frucht); Reconstructing Combinatorial Geometries (Thomas H. Brylawski); On Triangular and Cyclic Ramsey Numbers with k Colors (Fan Chung); The Minimality of the Mycielski Graph (V. Chvátal); On the Ramsey Number of the Five-Spoken Wheel (V. Chvátal and A. Schwenk); On the Hamiltonian Completion Problem (S. Goodman and S. Hedetniemi); Coloring Seven-Circuits (Dick Wick Hall); Absolute Retracts in Graphs (Pavol Hell); Cancelling Eulerian Graphs (Joan P. Hutchinson); A Graphical Realization Problem (Sukhamay Kundu); The Existence of Small Tactical Configurations (Marc J. Lipman); Tactical Configurations: An Introduction (Judith Q. Longyear); Structural Characterizations of Stability of Signed Digraphs Under Pulse Processes (Fred S. Roberts); The Charm Bracelet Problem and Its Applications (Paul K. Stockmeyer); On Tutte's Factorization Theorem (David P. Sumner).

DONALD W. BARNES and JOHN M. MACK, An Algebraic Introduction to Mathematical Logic. Graduate Texts in Mathematics 22, (Springer-Verlag, Heidelberg, 1975) viii + 123 pp. $10.80.

Chapter I. Universal Algebra. Chapter II. Propositional Calculus. Chapter III. Properties of the Propositional Calculus. Chapter IV. Predicate Calculus. Chapter V. First-Order Mathematics. Chapter VI. Zermélo–Fraenkel Set Theory. Chapter VII. Ultraproducts. Chapter VIII. Non-Standard Models. Chapter IX. Turing Machines and Gödel Numbers. Chapter X. Hilbert's Tenth Problem, Word Problems. References and Further Reading, Index of Notations. Subject Index.

CLAUDE BERGE and DIJEN RAY-CHAUDHURI, Eds., Hypergraph Seminar. Lecture Notes in Mathematics 411, Ohio State University 1972 (Springer-Verlag, Heidelberg, 1974) 287 pp.

Part I: General Hypergraphs. Isomorphism Problems for Hypergraphs (C. Berge): Nombres de coloration de l'hypergraphe h-parti complet (C. Berge); The Coloring Numbers of the Direct

Product of Two Hypergraphs (C. Berge and M. Simonovits); Graphe représentatif de l'hypergraphe h-parti complet (J.C. Bermond); The Chromatic Index of an Infinite Complete Hypergraphe: a Partition Theorem (R. Bonnet and P. Erdös); Intersecting Families of Edges in Hypergraphs Having the Hereditary Property (V. Chvátal); On theorems of Berge and Fournier (W.H. Cunningham); Extremal Problems on Graphs and Hypergraphs (P. Erdös); Hypergraph Reconstruction (V. Faber); Une condition pour qu'un hypergraphe, ou son complémentaire, soit fortement isomorphe à un hypergraphe complet (J.C. Fournier); On a Property of Hypergraphs with no cycles of Length Greater than 2 (P. Hansen and M. Las Vergnas); Sur les hypergraphes bichromatiques (M. Las Vergnas); Minimax Theorems for Hypergraphs (L. Lovász); Quelques problemes concernant les cliques des hypergraphes h-complets et q-parti h-complets (J.C. Meyer); Reconstruction Theorems for Infinite Hypergraphs (R. Rado); Note on a Hypergraph Extremal Problem (M. Simonovits); Sur une conjecture de V. Chvátal (F. Sterboul); On the Chromatic Number of the Direct Product of Hypergraphs (F. Sterboul).

Part II: Graphs, Matroids, Designs. Every Directed Graph has a Semikernel (V. Chvátal and L. Lovász); Elementary Strong Maps and Transversal Geometries (T.A. Dowling and D.G. Kelly); Some Problems in Graph Theory (P. Erdös); Aspects of the Theory of Hypermatroids (T. Helgason); Facets of 1-Matching Polyhedra (W. Pulleyblank and Jack Edmonds); Chromials (W.T. Tutte); Some Partitions of All Triples into Steiner Triple Systems (R.M. Wilson).

Part III: Unsolved Problems.

DAVID BOSTOCK, Logic and Arithmetic. Natural Numbers (Oxford University Press, London, 1974 x + 219 pp. $25.50 Canadian.

1. Introduction. 2. Objects. 3. Quantification. 4. Quantifiers and Types. 5. Numbers. Appendix 1. Theorems for the Ancestral. Appendix 2. Auxiliary Theorems for Arithmetic. 6. Logicism. List of Works Cited. Index.

G. BRAUNSS and H.-J. ZUBROD, Einführung in die Booleschen Algebren. Studienbuch für Studierende der Mathematik, Physik und Elektrotechnik an Pädagogischen Hochschulen und Universitäten ab 1. Semester. (Akademische Verlagsgesellschaft, Frankfurt am Main, 1974) viii + 169 pp. DM 16.90.

1. Schaltalgebra. 2. Boolesche Algebra. 3. Ergänzungen zur Schaltalgebra. 4. Grundbegriffe der Logik und Aussagenalgebra. 5. Einige Sätze aus der Theorie der Booleschen Algebren. Literatur. Lösungen der Ubungsaufgaben.

PHILIP J. DAVIS, The Schwarz Function and Its Applications. The Carus Mathematical Monographs, Number 17, (The Mathematical Association of America, 1974) xi + 228 pp.

1. Prologue. 2. Conjugate Coordinates in the Plane. 3. Elementary Geometrical Facts. 4. The Nine-Point Circle. 5. The Schwarz Function for an Analytic Arc. 6. Geometrical Interpretation of the Schwarz Function; Schwarzian Reflection. 7. The Schwarz Function and Differential Geometry. 8. Conformal Maps, Reflections, and their Algebra. 9. What Figure is the $\sqrt{-1}$ Power of a Circle? 10. Properties in the Large of the Schwarz Function. 11. Derivatives and Integrals. 12. Application to Elementary Fluid Mechanics. 13. The Schwarz Function and the Dirichlet Problem. 14. Schwarz Functions of Specified Type. 15. Schwarz Functions and Iterations. 16. Dictionary of Functional Relationships. 17. Bibliographical and Supplementary Notes. 18. Bibliography. Index.

M. HALL, Jr. and J.H. VAN LINT, Eds., Combinatorics. Mathematical Centre Tracts 56, Part 2: Graph theory; foundations, partitions and combinatorial geometry. Proceedings of the Advanced Study Institute on Combinatorics held at Nijenrode Castle, Breukelen, The Netherlands, July 8–20, 1974 (Mathematisch Centrum, Amsterdam, 1974) 118 pp. Dfl. 13.00.

Graph Theory. Isomorphism problems for hypergraphs (C. Berge); Extremal problems for hypergraphs (G.O.H. Katona); Applications of Ramsey style theorems to eigenvalues of graphs (A.J. Hoffman).

Foundations, Partitions and Combinatorial Geometry. Some recent developments in Ramsey theory (R.L. Graham and B.L. Rothschild); On an extremal property of antichains in partial orders. The LYM property and some of its implications and applications (D.J. Kleitman); Sperner families and partitions of a partially ordered set (C. Greene); Combinatorial reciprocity theorems (R.P. Stanley).

M. HALL, Jr. and J.H. VAN LINT, Eds., Combinatorics. Mathematical Centre Tracts 57, Part 3: Combinatorial group theory. Proceedings of the Advanced Study Institute on Combinatorics held at Nijenrode Castle, Breukelen, The Netherlands, July 8–20, 1974 (Mathematisch Centrum, Amsterdam, 1974) 160 pp. Dfl. 17.00.

Combinatorial Group Theory. Difference sets (M. Hall, Jr.); Invariant relations, coherent configurations and generalized polygons (D.G. Higman); 2-Transitive designs (W.M. Kantor); Suborbits in transitive permutation groups (P.J. Cameron); Groups, polar spaces and related structures (E.E. Shult).

PAUL R. HALMOS, Finite-Dimensional Vector Spaces. Undergraduate Texts in Mathematics, (Springer-Verlag, Heidelberg. Reprint of the 2nd edition published by Van Nostrand, 1974) 200 pp. $7.95.

I. Spaces. II. Transformations. III. Orthogonality. IV. Analysis. Appendix. Hilbert Space. Recommended Reading. Index of Terms. Index of Symbols.

FREDERICK S. HILLIER and GERALD J. LIEBERMAN, Operations Research, Second Ed., (Holden-Day, Inc., San Francisco, 1974) xii + 800 pp.

Introduction. *Part 1: Mathematical Programming.* Linear Programming, Special Types of Linear Programming Problems, The Application of Linear Programming, Network Analysis, including PERT-CPM, Dynamic Programming, Game Theory.

Part 2: Probabilistic Models. Probability Theory, Queueing Theory, The Application of Queueing Theory, Inventory Theory, Markovian Decision Processes and Applications, Reliability, Decision Analysis, Simulation.

Part 3: Advanced Topics in Mathematical Programming. Algorithms for Linear Programming, Integer Programming, Nonlinear Programming, Operations Research in Perspective. Appendixes: Convexity, Classical Optimization Methods, Matrices and Matrix Manipulations, Simultaneous Linear Equations, Tables. Answers to Selected Problems. Index.

FREDERICK S. HILLIER and GERALD J. LIEBERMAN, Solutions Manual for Introduction to Operations Research, Second Ed., (Holden-Day, Inc., San Francisco, 1974) 365 pp.

Linear Programming. Special Types of Linear Programming Problems. Application of Linear Programming. Network Analysis, Including PERT-CPM. Dynamic Programming. Game Theory. Probability Theory. Queueing Theory. Application of Queueing Theory. Inventory Theory. Markov Decision Processes. Reliability. Decision Analysis. Simulation. Algorithms for Linear Programming. Integer Programming. Nonlinear Programming, FORTRAN Computer Codes, Simplex method (tabular form), Transportation simplex method.

RICHARD B. HOLMES, Geometric Functional Analysis and its Applications. Graduate Texts in Mathematics 24, (Springer-Verlag, Heidelberg, 1975) 246 pp.

Convexity in Linear Spaces. Convexity in Linear Topological Spaces. Principles of Banach Spaces. Conjugate Spaces and Universal Spaces. References. Bibliography. Symbol Index. Subject Index.

KAI LAI CHUNG, Elementary Probability Theory with Stochastic Processes (Springer-Verlag, Heidelberg, 1974) x + 325 pp. $12.00.

Chapter 1: Set. Chapter 2: Probability. Chapter 3: Counting. Chapter 4: Random Variables. Appendix 1: Borel Fields and General Random Variables. Chapter 5: Conditioning and Independence. Chapter 6: Mean, Variance and Transforms. Chapter 7: Poisson and Normal Distributions. Appendix 2: Stirling's Formula and DeMoivre–Laplace's Theorem. Chapter 8: From Random Walks to Markov Chains. Appendix 3: Martingale. General References. Answers to Problems. Index.

GUNTER MENGES, Ed., Information, Inference and Decision. Theory and Decision Library, Volume 1, (D. Reidel Publishing Company, Dordrecht, 1974) Dfl. 38.00 (paper), Dfl. 58.00 (hardbound)

Part 1: Objective Theory of Inductive Behaviour. Elements of an Objective Theory of Inductive Behaviour (Gunter Menges). On the Problem of Vagueness in the Social Sciences (Gunter Menges and Heinz J. Skala). Notes on Etiality, the Adaptation Criterion, and the 'Inference-Decision' Problem (Bernd Leiner).

Part II: *Problems of Inference.* Comparison of Inference Philosophies (D.A.S. Fraser). On the Logic of Tests of Significance with Special Reference to Testing the Significance of Poisson Distributed Observations (James G. Kalbfleisch and D.A. Sprott).

Part III: *Probability, Information and Utility.* Probability and Utility-Dual Concepts in Decision Theory (Hans Schneeweiss). Entropy and Utility (Minaketan Behara). Entropy, Gravity and Utility in Transportation Modelling (Martin J. Beckmann).

Part IV: *Semantic Information.* Prior and Posterior Probabilities and Semantic Information (Jacob Marschak). Remarks on Semantic Information (Heinz J. Skala). Index of Names. Index of Subjects.

HAMDY A. TAHA, Integer Programming. Theory, Applications, and Computations, (Academic Press, Inc., New York, 1975) xii + 380 pp. $19.50.

Chapter 1: Integer Optimization and Its Applications. Chapter 2: Linear Programming. Chapter 3: Zero-One Implicit Enumeration. Chapter 4: Branch-and-Bound Methods. Chapter 5: Cutting Methods. Chapter 6: The Asymptotic Integer Algorithm. Chapter 7: Algorithms for Specialized Integer Models. Chapter 8: Computational Considerations in Integer Programming. References Index.